



ADDIS ABABA UNIVERSITY
COLLEGE OF TECHNOLOGY AND BUILT ENVIRONMENT
SCHOOL OF INFORMATION TECHNOLOGY AND
ENGINEERING

Driver Assistance, Safety, and Vehicle Management App
Software Requirements Specification

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1/20/2026	<Version 1>	Team Members	The document should follow a structured format with a front page, header, footer, and appropriate blank pages. Acronyms should be written in full upon first mention, and the content should be presented in paragraph format rather than bullet points. The SRS should adhere to a specified format, covering an introduction, project overview, and scope. General descriptions should provide product perspective, related existing products, functions, user characteristics, language requirements, and software interface details (including specific versions). Functional requirements should be complete, traceable from use cases, and broken down into simpler components where needed. Comments left in the document should be addressed. Use cases should have clear titles, use "use case" instead of "user story," and include scenarios to aid in sequence diagrams. The current sections appear incomplete and should be reviewed for completeness.
1/26/2026	<Version 2>	Team Members	The document should follow a structured format with a front page, header, footer, and appropriate blank pages. Acronyms should be written in full upon first mention, and the content should be presented in paragraph format rather than bullet points. The SRS should adhere to a specified format, covering an introduction, project overview, and scope (detailing features). General descriptions should provide product perspective, related existing products, functions, user characteristics, language requirements, and software interface details (including specific versions). Functional requirements should be complete, traceable from use cases, and

			broken down into simpler components where needed. Comments left in the document should be addressed. Use cases should have clear titles, use "use case" instead of "user story," and include scenarios to aid in sequence diagrams. The current sections appear incomplete and should be reviewed for completeness.
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Document Approval

The following Software Requirements Specification has been accepted and approved by the following:

Signature	Printed Name	Title	Date

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Definitions, Acronyms, and Abbreviations

- **AI** – Artificial Intelligence
- **APIs** – Application Programming Interface
- **FAQs** – Frequently Asked Questions
- **GUI** – Graphical User Interfaces
- **GPS** – Global Positioning System
- **HTTPS** – HyperText Transfer Protocol Secure
- **JSON** – JavaScript Object Notation
- **MTBF** – Mean Time Between Failures
- **OBD-II** – On-Board Diagnostics
- **SDS** – Software Design Specification
- **SRS** – Software Requirement Specification
- **UML** – Unified Modeling Language

DECLARATION

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included. We have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Group NO Team Date: January 26, 2026

1. Introduction

The introduction provides a high-level overview of the Driver Assistance System's purpose, scope, and the organization of this SRS document.

1.1 Purpose

The purpose of this Software Requirements Specification (SRS) is to provide a comprehensive description of the Driver Assistance System. This document outlines the functional and non-functional requirements, system constraints, and use cases for the three main components: the Driver App, the Garage App, and the Admin Dashboard. The intended audience includes the project development team, advisors, and stakeholders involved in this project.

1.2 Scope

The Driver Assistance System is a multi-platform application designed to support drivers in managing vehicle maintenance and accessing automotive services, while enabling garage owners to manage service requests efficiently. The system consists of Driver, Garage, and Admin functionalities as described below.

User Management

Authentication and profile management for drivers, garage owners, and administrators. The system supports user registration, login, logout, and profile setup, including vehicle information for drivers and service details for garage owners.

Vehicle Profile and Maintenance Management

Tools for drivers to register and manage vehicle details and monitor vehicle health. The system allows drivers to track maintenance status (e.g., engine oil, tires, battery), view maintenance history, and receive automated reminders for routine services and inspections.

Appointment and Service Management

Facilitates interaction between drivers and garages through appointment scheduling. Drivers can book garage appointments or request onsite mechanic assistance, while garage owners can approve or reject requests and update service status (pending, in progress, completed).

Service Locator and Emergency Support

Provides drivers with location-based access to nearby registered garages, fuel stations, and essential services. This module supports navigation assistance during breakdowns or urgent situations.

Education and Knowledge Support

An education center that allows drivers to access guides and resources related to car maintenance, safe driving practices, and basic repair techniques to promote preventive care.

Community and Feedback System

Enables drivers to participate in a community platform to post issues, ask questions, and share experiences. Drivers can also rate and review garage services, and garage owners can view received ratings and feedback.

AI-Based Assistance

An AI chatbot that provides drivers with personalized advice based on vehicle data and user input, particularly during minor emergencies or vehicle performance issues.

Notifications and Reminders

Delivers system notifications related to appointments, maintenance reminders, and service updates. Notifications can be viewed by day, week, or month and customized through user preferences.

Application Settings

Allows drivers and garage owners to customize application preferences such as theme, language, and notification settings.

Administrative Control (Out of Scope for Detailed Design)

Administrative functionalities include approving garage registrations and managing system-level content. Detailed admin workflows are not covered in this SRS.

1.3 Overview

Section 2: Overall System Description

- Provides a high-level overview of the system
- Describes user characteristics and user types
- Outlines system design constraints and assumptions

Section 3: Specific Requirements

- Details the functional requirements of the system
- Describes system use cases and interactions
- Specifies non-functional requirements such as security, performance, and reliability

2. General Description

This section describes the factors that affect the product and its general requirements, making the specific requirements in Section 3 easier to understand.

2.1 Product Perspective

Currently, driver assistance and vehicle service coordination are handled through mostly manual and informal methods. Drivers typically rely on personal knowledge, roadside inquiries, or phone calls to locate

nearby garages and request assistance, which can be time-consuming and unreliable, especially in emergency situations. Garage owners manage appointments and customer requests using paper records or basic phone communication, making it difficult to track service status or manage multiple requests efficiently. There is also no centralized system for administrators to oversee operations and manage users. These limitations result in delayed responses, poor communication, lack of transparency, and inefficient service delivery.

The Driver Assistance System is a new, self-contained suite consisting of three integrated applications: a mobile application for drivers, a mobile application for garage owners, and a web-based dashboard for administrators.

- System Interfaces: The system interacts with GPS services to provide real-time location data for the "Service Locator" feature.
- Data Management: It relies on a central database to synchronize information across all three user roles, such as appointment statuses and community posts.

2.2 Product Functions

The system performs several core functions to support its users:

- User Management: Authentication and profile setup for drivers, garage owners, and admins.
- Vehicle Tracking: Registration of vehicle details (make, model, year) and tracking of maintenance status for components like engine oil, tires, and brakes.
- Automated Reminders: Scheduling notifications for routine checkups and service expirations.
- Service & Emergency Assistance: Locating and navigating to nearby registered garages or fuel stations based on the driver's current location.
- Appointment Management: A bidirectional system where drivers request and track services, while garages approve or reject them.
- Education & Community: Accessing guides on car maintenance and participating in a community forum via posts, comments, and likes.
- Administrative Oversight: Approval of new garage registrations and management of educational content.

2.3 User Characteristics

The system caters to three distinct user groups:

- Drivers: General vehicle owners who may not have extensive mechanical knowledge. They require an intuitive interface to track maintenance and find help quickly.
- Garage Owners: Professionals who need an efficient way to manage their service schedule, update service statuses, and reach new customers.
- Administrators: Technical users responsible for moderating community content, verifying garage documents, and maintaining the accuracy of educational resources.

2.4 General Constraints

The development and operation of the system are limited by the following constraints:

- Hardware Requirements: Drivers and garage owners must have smartphones equipped with GPS and internet connectivity to use the location-based features.
- Security & Privacy: The system must securely store sensitive user data, including driver's license plate numbers and garage registration documents.
- Language & Accessibility: The applications must support multiple languages and light/dark themes to accommodate diverse user preferences.
- Reliability: Real-time synchronization is critical for appointment management to prevent double-booking or missed service requests.

2.5 Assumptions and Dependencies

This subsection of the SRS should list each of the factors that affect the requirements stated in the SRS. These factors are not design constraints on the software but are, rather, any changes to them that can affect the requirements in the SRS. For example, an assumption might be that a specific operating system will be available on the hardware designated for the software product. If, in fact, the operating system is not available, the SRS would then have to change accordingly.

3. Specific Requirements

This section specifies all software requirements in sufficient detail to enable system designers to design the system and testers to verify that the system satisfies those requirements. All requirements stated in this section are externally perceivable by users, operators, or other external systems.

Each requirement is:

- Correct, unambiguous, complete, and consistent
- Ranked by importance
- Verifiable and testable
- Uniquely identifiable for traceability

This section reiterates the system capabilities described in Section 2, but at a level of detail intended for developers and testers.

3.1 External Interface Requirements

3.1.1 User Interfaces

The system shall provide graphical user interfaces (GUIs) for all interactions with users. No command-line interface shall be provided.

1. User Interface Characteristics

The system shall support the following user interfaces:

a) Driver Mobile Application Interface

The system shall provide a mobile GUI for drivers.

The interface shall allow drivers to:

- Register and manage vehicle details.

- View vehicle status, maintenance history, and reminders.
- Discover nearby garages and services using map views.
- Book garage appointments and track service status.
- Interact with the community section.
- Access educational content.
- Interact with an AI-based assistance component
- The interface shall support touch-based interaction.

b) Garage Mobile Application Interface

The system shall provide a mobile GUI for garage owners.

The interface shall allow garage users to:

- Manage garage profiles and availability.
- View, accept, reject, and update appointment requests.
- Update service status information.

c) Administrative Web Interface

The system shall provide a web-based GUI for administrators.

The interface shall allow administrators to:

- Approve or reject garage registrations.
- Manage educational content.
- Moderate community content and users.

2. Interface Optimization and Accessibility

- The system shall present consistent layouts, icons, and navigation mechanisms.
- The system shall minimize the number of interactions required to complete common tasks.
- The system shall provide readable text, appropriate contrast, and scalable font sizes.
- The system shall provide user feedback for errors, confirmations, and system status.

The system shall follow general accessibility best practices to support users with visual or motor limitations.

3.1.2 Hardware Interfaces

The system does not directly control or manage external hardware devices.

Supported Hardware Interfaces

- The system shall interface with mobile device GPS hardware through the operating system location services for location-based service discovery.
- The system shall utilize standard smartphone hardware components including:
 - Touchscreen for user input
 - Network interface for Internet connectivity

Statement:

The system has no additional hardware interface requirements.

3.1.3 Software Interfaces

The system shall interface with the following externally provided software products. These software products are required for the operation of the system.

3.1.3.1 Google Maps Platform Purpose:

The system shall integrate with the Google Maps API to support location-based service discovery, map visualization, real-time routing, and location tracking.

Data shall be exchanged between the system and the Google Maps service using RESTful HTTPS requests.

Request messages shall include geographic coordinates and place query parameters.

Response messages shall be returned in JSON format.

3.1.3.2 Authentication Mechanism

The system shall use JSON Web Token (JWT)-based authentication to provide secure user authentication and authorization in accordance with RFC 7519.

Authentication data shall be transmitted using HTTPS.

Security tokens shall be formatted in JSON.

The system may support OAuth 2.0 for third-party authentication and integration where applicable.

3.1.3.3 Database Management System

The system shall use PostgreSQL as the primary database management system for persistent data storage.

The backend server shall communicate with the database using SQL.

Data shall be organized in relational tables.

The system shall support database replication and backup mechanisms to ensure data availability and fault tolerance.

3.1.3.4 API Structure

The system shall expose application functionality through RESTful web service interfaces.

API requests and responses shall be formatted in JSON.

The system may support real-time data updates through persistent communication mechanisms for features requiring immediate feedback.

3.1.4 Communications Interfaces

The system shall use standard communication protocols for data exchange.

Communication Protocols

- The system shall communicate between client applications and backend services using HTTP/HTTPS.
- The system shall use RESTful web services for data exchange.
- All messages shall be formatted using JSON.

The system does not require or implement any custom communication protocols.

3.2 Functional Requirements

Functional Requirements for Admin Dashboard

FR-AD-01 - Admin Login

ID	FR-AD-01
Name	Admin Login
Summary	Allow registered admins to log in to the system.
Description	The system shall allow a registered admin to log in using a phone number and password. The system shall validate credentials and grant access if correct, or display an error message for invalid credentials.
Reference	AD-UC-01 – Admin Login
Dependence	None
Priority	High

FR-AD-02 - Register Admin

ID	FR-AD-02
Name	Register Admin
Summary	Allow a logged-in admin to register new admins.
Description	The system shall allow a logged-in admin to create a new admin account by entering the required details. The system shall validate inputs, check for duplicates, and display appropriate success or error messages.
Reference	AD-UC-02 – Register Admin
Dependence	FR-AD-01
Priority	High

FR-AD-03 - Admin Logout

ID	FR-AD-03
Name	Admin Logout
Summary	Allow admins to securely log out of the system.
Description	The system shall allow a logged-in admin to log out after confirming the action. Upon confirmation, the system shall terminate the admin session and redirect to the login screen.
Reference	AD-UC-03 – Admin Logout
Dependence	FR-AD-01
Priority	Medium

FR-AD-04 - Approve garage Registration

ID	FR-AD-04
Name	Approve Garage Registration
Summary	Enable admins to approve newly registered garages.
Description	The system shall allow an admin to review pending garage registrations, check submitted documents, and approve the garage. Once approved, the garage account shall become active and visible to drivers.
Reference	AD-UC-04 – Approve Garage Registration
Dependence	FR-AD-01
Priority	High

FR-AD-05 - Reject Garage Registration

ID	FR-AD-05
Name	Reject Garage Registration
Summary	Enable admins to reject garage registration requests.

Description	The system shall allow an admin to review pending garage registrations and reject those that do not meet requirements. The system shall notify the garage with the reason for rejection or request additional documents if needed.
Reference	AD-UC-05 – Reject Garage Registration
Dependence	FR-AD-01
Priority	High

FR-AD-06 - View list of educational content

ID	FR-AD-06
Name	View List of Educational Content
Summary	Enable admins to view educational content available in the system.
Description	The system shall allow a logged-in admin to view a list of all educational content available in the Education Center, including basic content details. If no content exists, the system shall display an empty list message.
Reference	AD-UC-06 – View List of Educational Content
Dependence	FR-AD-01
Priority	Medium

FR-AD-07 - Add Educational content

ID	FR-AD-07
Name	Add Educational Content
Summary	Enable admins to add educational content for drivers.
Description	The system shall allow a logged-in admin to add educational content through the Education Center.

	The system shall validate content before saving and make it visible to drivers once added successfully.
Reference	AD-UC-07 – Add Educational Content
Dependence	FR-AD-01
Priority	Medium

FR-AD-08 - Update Educational Content

ID	FR-AD-08
Name	Update Educational Content
Summary	Enable admins to update existing educational content.
Description	The system shall allow a logged-in admin to edit existing content in the Education Center. The system shall validate changes before saving and update the content for visibility to drivers.
Reference	AD-UC-08 – Update Educational Content
Dependence	FR-AD-01, FR-AD-07
Priority	Medium

FR-AD-09 - Delete Educational Content

ID	FR-AD-09
Name	Delete Educational Content
Summary	Enable admins to delete existing educational content.
Description	The system shall allow a logged-in admin to delete educational content through the Education Center after confirming the action. Deleted content shall no longer be visible to drivers.
Reference	AD-UC-09 – Delete Educational Content

Dependence	FR-AD-01, FR-AD-07
Priority	Medium

FR-AD-10 - Search Users

ID	FR-AD-10
Name	Search Users
Summary	Enable admins to search for users in the system.
Description	The system shall allow a logged-in admin to search for users using keywords. The system shall display matching users or show a “No results found” message if no matches exist.
Reference	AD-UC-10 – Search Users
Dependence	FR-AD-01
Priority	Medium

FR-AD-11 - View & Filter users

ID	FR-AD-11
Name	View & Filter users
Summary	Enable admins to view all users and filter them by moderation status.
Description	The system shall allow a logged-in admin to view a list of all users along with relevant details such as name and moderation status. The admin shall also be able to filter users based on their moderation status, including reported, warned, and blocked users. The system shall display users matching the selected filters or an empty result message if no users exist or match the filter.
Reference	AD-UC-11 – View list of users, AD-UC-12 – Filter Users by Status

Dependence	FR-AD-01, FR-AD-11
Priority	Medium

FR-AD-12 - Warn User

ID	FR-AD-12
Name	Warn User
Summary	Enable admins to issue warnings to users.
Description	The system shall allow a logged-in admin to issue a warning to a user after selecting the user from the user list, search results, or filtered list. The admin shall be required to provide a warning reason, which shall be sent to the user, and the user's status shall be updated to Warned.
Reference	AD-UC-12 – Warn User
Dependence	FR-AD-01, FR-AD-11
Priority	High

FR-AD-13 - Block User

ID	FR-AD-13
Name	Block User
Summary	Enable admins to block users from the system.
Description	The system shall allow a logged-in admin to block a user after confirmation and require the admin to provide a blocking reason. The system shall restrict the user's access and notify the user with the reason for blocking.
Reference	AD-UC-13 – Block User
Dependence	FR-AD-01, FR-AD-11
Priority	High

FR-AD-14 - Take down post

ID	FR-AD-14
Name	Take Down Post
Summary	Enable admins to remove posts that violate platform policies.
Description	The system shall allow a logged-in admin to remove a post after confirmation. Once taken down, the post shall no longer be visible to users. If the admin cancels the action, the post shall remain unchanged.
Reference	AD-UC-14 – Take Down Post
Dependence	FR-AD-01
Priority	High

Functional Requirements for Driver App

FR-DR-01 - Driver Sign Up

ID	FR-DR-01
Name	Driver Sign Up
Summary	Enable new drivers to create an account in the app.
Description	The system shall allow a new driver to register by providing first name, last name, phone number, and password. The system shall validate all inputs, ensure the phone number is unique, and create a driver account upon successful validation.
Reference	DR-UC-01 – Driver Sign Up
Dependence	None
Priority	High

FR-DR-02 - Driver Login

ID	FR-DR-02
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Name	Driver Login
Summary	Allows registered drivers to login and access the app.
Description	The system shall allow a registered driver to log in using a phone number and password. The system shall validate credentials and grant access if they are correct, or display an error message if invalid.
Reference	DR-UC-02 – Driver Login
Dependence	FR-DR-01
Priority	High

FR-DR-03 - Driver Logout

ID	FR-DR-03
Name	Driver Logout
Summary	Allow drivers to securely log out of the system.
Description	The system shall allow a logged-in driver to log out after confirming the action. Upon confirmation, the system shall terminate the driver's session and redirect to the login screen.
Reference	DR-UC-03 – Driver Logout
Dependence	FR-DR-02
Priority	Medium

FR-DR-04 - Create Driver Profile

ID	FR-DR-04
Name	Create Driver Profile
Summary	Allow drivers to create their personal profile.
Description	The system shall allow a logged-in driver to create a profile by entering name, phone number, email

	address, physical address, and license plate number. The system shall validate required fields before saving the profile.
Reference	DR-UC-04 – Create Driver Profile
Dependence	FR-DR-02
Priority	High

FR-DR-05 - Update Driver Profile

ID	FR-DR-05
Name	Update Driver Profile
Summary	Allow drivers to modify existing profile information.
Description	The system shall allow a driver to update previously saved profile information and store the updated data after validation.
Reference	DR-UC-05 – Update Driver Profile
Dependence	FR-DR-04
Priority	Medium

FR-DR-06 - Register Vehicle

ID	FR-DR-06
Name	Register Vehicle
Summary	Allows the driver to register a new vehicle in the system.
Description	The system shall allow the driver to register a vehicle by entering required vehicle details such as plate number, model, and year.
Reference	Driver App – Vehicle & Maintenance
Dependence	FR-DR-02

Priority	High
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FR-DR-07 - Update Vehicle Details

ID	FR-DR-07
Name	Update Vehicle Details
Summary	Enables the driver to modify existing vehicle information.
Description	The system shall allow the driver to update registered vehicle details to ensure accurate and current information.
Reference	Driver App – Vehicle & Maintenance
Dependence	FR-DR-06
Priority	Medium

FR-DR-08-View Home Dashboard

ID	FR-DR-08
Name	View Home Dashboard
Summary	Displays an overview of vehicle and maintenance status.
Description	The system shall display a dashboard showing vehicle status, maintenance reminders, and alerts to the driver.
Reference	Driver App – Vehicle & Maintenance
Dependence	FR-DR-02, FR-DR-06
Priority	High

FR-DR-09- Update Maintenance Status

ID	FR-DR-09
Name	Update Maintenance Status

Summary	Allows the driver to update vehicle maintenance progress.
Description	The system shall allow the driver to update the maintenance status of a vehicle, including completed or ongoing maintenance.
Reference	Driver App – Vehicle & Maintenance
Dependence	FR-DR-06
Priority	High

FR-DR-10-Set Maintenance Reminders

ID	FR-DR-10
Name	Set Maintenance Reminders
Summary	Enables the driver to schedule maintenance reminders.
Description	The system shall allow the driver to set maintenance reminder dates and notify the driver when the date is reached.
Reference	Driver App – Vehicle & Maintenance
Dependence	FR-DR-06
Priority	Medium

FR-DR-11-View Maintenance History

ID	FR-DR-11
Name	View Maintenance History
Summary	Allows the driver to view past maintenance records.
Description	The system shall display a history of maintenance activities performed on the registered vehicle.
Reference	Driver App – Vehicle & Maintenance
Dependence	FR-DR-06, FR-DR-09

Priority	Medium
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FR-DR-12-View Educational Content

ID	FR-DR-12
Name	View Educational Content
Summary	Allows drivers to browse educational guides related to vehicle maintenance and safety.
Description	The system shall allow a logged-in driver to access and view available educational guides provided through the Education Center. The content shall be presented in a clear and organized manner to support driver learning and awareness.
Reference	DR-UC-12
Dependence	FR-DR-01
Priority	High

FR-DR-13-Search Educational Content

ID	FR-DR-13
Name	Search Educational Content
Summary	Allows drivers to search educational guides using keywords.
Description	The system shall allow a logged-in driver to search educational content by entering keywords and shall display only the guides that match the search criteria.
Reference	DR-UC-13
Dependence	FR-DR-12
Priority	Medium

FR-DR-14-View Community Posts

ID	FR-DR-14
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Name	View Community Posts
Summary	Allows drivers to view the community posts feed.
Description	The system shall allow a logged-in driver to view a feed of community posts created by other drivers, displayed in chronological or relevance-based order.
Reference	DR-UC-14
Dependence	FR-DR-01
Priority	High

FR-DR-15-View My Posts

ID	FR-DR-15
Name	View My Posts
Summary	Allows drivers to view their own community posts.
Description	The system shall allow a logged-in driver to view a list of all community posts they have created.
Reference	DR-UC-15
Dependence	FR-DR-14
Priority	Medium

FR-DR-16-Create Post

ID	FR-DR-16
Name	Create Post
Summary	Allows drivers to create and publish community posts.
Description	The system shall allow a logged-in driver to create, submit, and publish a new

	community post that becomes visible to other drivers.
Reference	DR-UC-16
Dependence	FR-DR-14
Priority	High

FR-DR-17- Edit Post

ID	FR-DR-17
Name	Edit Post
Summary	Allows drivers to edit their existing community posts.
Description	The system shall allow a logged-in driver to modify the content of community posts that they own.
Reference	DR-UC-17
Dependence	FR-DR-16
Priority	Medium

FR-DR-18- Delete Post

ID	FR-DR-18
Name	Delete Post
Summary	Allows drivers to delete their community posts.

Description	The system shall allow a logged-in driver to permanently delete community posts that they have created.
Reference	DR-UC-18
Dependence	FR-DR-16
Priority	Medium

FR-DR-19- Comment on Community Post

ID	FR-DR-19
Name	Comment on Community Post
Summary	Allows drivers to add comments to community posts.
Description	The system shall allow a logged-in driver to write and submit comments on existing community posts.
Reference	DR-UC-19
Dependence	FR-DR-14
Priority	High

FR-DR-20- Delete Comment

ID	FR-DR-20
Name	Delete Comment
Summary	Allows drivers to delete their own comments.
Description	The system shall allow a logged-in driver to delete comments that they have posted on community content.
Reference	DR-UC-20
Dependence	FR-DR-19

Priority	Low
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FR-DR-21- Like Community Post

ID	FR-DR-21
Name	Like Community Post
Summary	Allows drivers to like or unlike community posts.
Description	The system shall allow a logged-in driver to like or unlike community posts and shall update the like count accordingly.
Reference	DR-UC-21
Dependence	FR-DR-14
Priority	Medium

FR-DR-22- Report Community Content

ID	FR-DR-22
Name	Report Community Content
Summary	Allows drivers to report inappropriate community content.

Description	The system shall allow a logged-in driver to report posts or comments that are considered inappropriate or abusive for moderation review.
Reference	DR-UC-22
Dependence	FR-DR-14
Priority	Medium

FR-DR-23- Bookmark Community Content

ID	FR-DR-23
Name	Bookmark Community Content
Summary	Allows drivers to bookmark community posts or comments for easy reference.
Description	The system shall allow a logged-in driver to bookmark community posts or comments, adding them to their personal bookmark list. The system shall also allow the driver to remove (unbookmark) previously bookmarked content. The bookmark status and count shall be updated in real-time.
Reference	DR-UC-23
Dependence	FR-DR-14
Priority	High

FR-DR-24- View Bookmark List

ID	FR-DR-24
Name	View Bookmark List
Summary	Allows drivers to view their collection of bookmarked community content.

Description	The system shall allow a logged-in driver to access a dedicated section to view all community posts and comments they have bookmarked.
Reference	DR-UC-24
Dependence	FR-DR-23
Priority	High

FR-DR-25- Locate Nearby Services

ID	FR-DR-25
Name	Locate Nearby Services
Summary	Allows drivers to find nearby vehicle-related services.
Description	The system shall allow a logged-in driver to locate nearby garages, fuel stations, and essential services based on the driver's current location.
Reference	DR-UC-25
Dependence	Location Enabled
Priority	High

FR-DR-26- View Service Details

ID	FR-DR-26
Name	View Service Details
Summary	Allows drivers to view detailed information about a service.
Description	The system shall allow a logged-in driver to view detailed information for a selected service, including location and contact details.
Reference	DR-UC-26

Dependence	FR-DR-25
Priority	Medium

FR-DR-27- Filter Nearby Services

ID	FR-DR-27
Name	Filter Nearby Services
Summary	Allows drivers to filter service search results.
Description	The system shall allow a logged-in driver to apply filters to narrow down nearby services based on predefined criteria.
Reference	DR-UC-27
Dependence	FR-DR-25
Priority	Medium

FR-DR-28- Navigate to Service Location

ID	FR-DR-28
Name	Navigate to Service Location
Summary	Allows drivers to navigate to a selected service location.
Description	The system shall allow a logged-in driver to initiate map-based navigation to a selected service location.
Reference	DR-UC-28
Dependence	FR-DR-25
Priority	High

FR-DR-29- Chat with AI Assistant

ID	FR-DR-29
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Name	Chat with AI Assistant
Summary	Allows drivers to interact with an AI assistant for guidance.
Description	The system shall allow a logged-in driver to communicate with an AI assistant to receive vehicle-related advice and recommendations.
Reference	DR-UC-29
Dependence	Vehicle Data
Priority	High

FR-DR-30- View AI Chat History

ID	FR-DR-30
Name	View AI Chat History
Summary	Allows drivers to view previous AI conversations.
Description	The system shall allow a logged-in driver to communicate with an AI assistant to receive vehicle-related advice and recommendations.
Reference	DR-UC-30
Dependence	FR-DR-29
Priority	Low

FR-DR-31 - Delete AI Chat History

ID	FR-DR-31
Name	Delete AI Chat History
Summary	Allows drivers to delete AI chat history.

Description	The system shall allow a logged-in driver to permanently delete their AI chat history.
Reference	DR-UC-31
Dependence	FR-DR-30
Priority	Low

FR-DR-32- Book Garage Appointment

ID	FR-DR-32
Name	Book Garage Appointment
Summary	Enables drivers to book a service appointment with a garage
Description	The system shall allow a logged-in driver to select a garage, choose a service type, date,, and submit an appointment request. The system shall mark the appointment status as pending after submission
Reference	DR-UC-32 - Book Garage Appointment
Dependence	FR-DR-01 (Driver Sign Up), FR-DR-02 (Driver Login)
Priority	High

FR-DR-33- View List of Appointments

ID	FR-DR-33
Name	View List of Appointments
Summary	Allows drivers to view booked appointments with their current status of their appointments.
Description	The system shall display the status of driver appointments, including Pending, Approved, In Service, and Completed, and update the status when changed by the

	garage.
Reference	DR-UC-33 View List of appointments
Dependence	FR-DR-32 (Book Garage Appointment)
Priority	Medium

FR-DR-34-Reschedule Appointment

ID	FR-DR-34
Name	Reschedule Appointment
Summary	Allows the driver to reschedule the already booked appointments.
Description	The system shall allow the driver to view their booked appointments and allow them to change the date based on the status
Reference	DR-UC-34 Reschedule appointments
Dependence	FR-DR-32 (Book Garage Appointment)
Priority	Medium

FR-DR-35- Cancel Appointment

ID	FR-DR-35
Name	Cancel Appointment
Summary	Allows drivers to cancel or reschedule an existing appointment.
Description	The system shall allow the driver to cancel or reschedule an appointment that has not yet been accepted and notify the garage of the change.
Reference	DR-UC-35– Cancel Appointment
Dependence	FR-DR-32- Book garage appointment
Priority	High

FR-DR-36- Request Onsite Mechanic Assistance

ID	FR-DR-36
Name	Request Onsite Mechanic Assistance
Summary	Enables drivers to request roadside or onsite mechanic support
Description	The system shall allow the driver to request onsite mechanic assistance and share the driver's current location with nearby garages offering this service.
Reference	DR-UC-36-Request onsite mechanic
Dependence	FR-DR-02 (Driver Login)
Priority	High

FR-DR-37- Rate & Review Garage

ID	FR-DR-37
Name	Rate & Review Garage
Summary	Allows drivers to rate and review garages after service completion.
Description	The system shall allow the driver to submit a rating and optional review for a garage after a service has been completed.
Reference	DR-UC-37 Rate and Review Garage
Dependence	FR-DR-32- Book garage appointment
Priority	Medium

FR-DR-38-Update App Settings

ID	FR-DR-38
Name	Update App Settings
Summary	Allows drivers to customize application preferences

Description	The system shall allow the driver to configure application settings including theme, language, and notification preferences.
Reference	DR-UC-38- update app setting
Dependence	FR-DR-02 (Driver Login)
Priority	Low

FR-DR-39-View Notifications

ID	FR-DR-39
Name	View Notifications
Summary	Allows drivers to view notifications by time period.
Description	The system shall allow the driver to view notifications filtered by day, week, or month and mark notifications as read after viewing
Reference	DR-UC-39 View Notification
Dependence	FR-DR-02 (Driver Login)
Priority	High

Functional Requirements for Garage App

FR-GA-01 - Garage Signup

ID	FR-GA-01
Name	Garage Signup & login
Summary	Allows garage owners to register a garage account in the system. And Allows registered garage owners to log in to the system.
Description	The system shall allow a garage owner to register by providing garage details and owner information. The system shall validate the submitted data and

	create a garage account pending admin approval. After approval is processed, The system shall allow a registered garage owner to log in using valid credentials. Upon successful authentication, the system shall grant access to the Garage App.
Reference	GA-UC-01 – Garage Sign Up and GA-UC-02-Garage login
Dependence	None
Priority	High

FR-GA-02 - Garage Logout

ID	FR-GA-02
Name	Garage Logout
Summary	Allows garage owners to log out of the system securely.
Description	The system shall allow a logged-in garage owner to log out after confirmation. Upon confirmation, the system shall terminate the session and redirect the user to the login screen.
Reference	GA-UC-03 – Garage Logout
Dependence	FR-GA-01 (Garage Sign Up & Login)
Priority	Medium

FR-GA-03 - View Garage Profile

ID	FR-GA-03
Name	View Garage Profile
Summary	Allows garage owners to view garage profile information.

Description	The system shall allow a logged-in garage owner to view stored garage profile details including location, services offered, working hours, availability, and contact information.
Reference	GA-UC-04 – View Garage Profile
Dependence	FR-GA-01 (Garage Sign Up & Login)
Priority	Medium

FR-GA-04 - Update Garage Profile

ID	FR-GA-04
Name	Update Garage Profile
Summary	Allows garage owners to update garage profile information.
Description	The system shall allow a logged-in garage owner to update garage details such as services offered, working hours, availability, and location. The system shall validate and save the updated information.
Reference	GA-UC-05 – Update Garage Profile
Dependence	FR-GA-01 (Garage Sign Up & Login)
Priority	High

FR-GA-05- Approve Appointment Requests

ID	FR-GA-05
Name	Approve Appointment Requests
Summary	Allows garage owners to approve appointment requests from drivers.
Description	The system shall allow the garage owner to approve

	pending appointment requests. Upon approval, the system shall update the appointment status to <i>Approved</i> and notify the driver.
Reference	GA-UC-06 – Approve Appointment
Dependence	FR-GA-01 (Garage Sign Up & Login)
Priority	High

FR-GA-06 - Reject Appointment Requests

ID	FR-GA-06
Name	Reject Appointment Requests
Summary	Allows garage owners to reject appointment requests from drivers.
Description	The system shall allow the garage owner to reject pending appointment requests. Upon rejection, the system shall update the appointment status to <i>Rejected</i> and notify the driver.
Reference	GA-UC-07 – Reject Appointment
Dependence	FR-GA-01 (GarageSign Up & Login)
Priority	High

FR-GA-07 - Update Service Status

ID	FR-GA-07
Name	Update Service Status
Summary	Allows garage owners to update the progress of vehicle services.
Description	The system shall allow the garage owner to update the service status of an appointment as Pending, In

	Progress, or Completed. The updated status shall be visible to the driver.
Reference	GA-UC-08 – Update Service Status
Dependence	FR-GA-05 (Approve Appointment)
Priority	High

FR-GA-08 - View Service and Appointment History

ID	FR-GA-08
Name	View Service and Appointment History
Summary	Allows garage owners to view past service and appointment records.
Description	The system shall allow the garage owner to view a history of completed and previous service appointments for reference and record keeping.
Reference	GA-UC-09 – View Service History
Dependence	FR-GA-01 (Garage Sign up & Login)
Priority	Medium

FR-GA-09- View Garage Notifications

ID	FR-GA-09
Name	View Garage Notifications
Summary	Allows garage owners to view system notifications.
Description	The system shall allow the garage owner to view notifications related to appointment requests, service updates, and system alerts, grouped by time period.
Reference	GA-UC-10 – View Garage Notifications

Dependence	FR-GA-01 (Garage Sign up & Login)
Priority	Medium

FR-GA-10- Update Garage Notifications

ID	FR-GA-10
Name	Update Garage Settings
Summary	Allows garage owners to customize application settings.
Description	The system shall allow the garage owner to update application preferences such as theme, language, and notification settings.
Reference	GA-UC-11 – Update Garage Settings
Dependence	FR-GA-01 (GarageSign Up & Login)
Priority	Low

FR-GA-11- View Garage Reviews and Ratings

ID	FR-GA-11
Name	View Garage Reviews and Ratings
Summary	Allows garage owners to view feedback submitted by drivers.
Description	The system shall allow the garage owner to view ratings and written reviews submitted by drivers for completed services, including average ratings and individual feedback.
Reference	GA-UC-12 – View Garage Reviews and Ratings
Dependence	FR-GA-01 (Garage Sign Up &Login)

Priority	Medium
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3.3 Use Cases

Use Case Specification for Admin Dashboard

AD-UC-01 - Admin Login

Use Case ID	AD-UC-01
Use Case Name	Admin Login
Primary Actor	Admin
Description	This use case allows a registered admin to log in to the system.
Trigger	The admin selects the Login option.
Preconditions	The admin is registered in the system.
Postconditions	The admin is successfully logged in.
Main Flow	<ol style="list-style-type: none"> 1. The admin enters a phone number and password. 2. The system validates the entered credentials. 3. The system grants access to the admin dashboard.
Alternate / Exception Flow	E1: Invalid Credentials <ul style="list-style-type: none"> • If the credentials are invalid, the system displays an error message and prompts the admin to retry.

AD-UC-02 - Register Admin

Use Case ID	AD-UC-02
Use Case Name	Register Admin
Primary Actor	Admin
Description	This use case allows a logged-in admin to register new admins to the system.
Trigger	The admin selects the “Register New Admin” option.
Preconditions	The admin is logged in and has permissions to add new admins.

Postconditions	A new admin account is created and can log in.
Main Flow	<ol style="list-style-type: none"> The admin selects the “Register New Admin” option. The system displays the admin registration form. The admin enters the required details (name, phone number, password). The system validates the entered details. The system creates a new admin account. The system confirms successful registration to the admin.
Alternate / Exception Flow	<p>E1: Invalid Details</p> <ul style="list-style-type: none"> If any entered detail is invalid or missing, the system displays an error message and prompts for correction. <p>E2: Duplicate Admin</p> <ul style="list-style-type: none"> If the phone number is already registered, the system displays a message indicating the admin already exists.

AD-UC-03 - Admin Logout

Use Case ID	AD-UC-02
Use Case Name	Admin Logout
Primary Actor	Admin
Description	This use case allows the admin to securely log out of the system with confirmation.
Trigger	The admin selects the Logout option.
Preconditions	The admin is logged in.
Postconditions	The admin session is terminated.
Main Flow	<ol style="list-style-type: none"> The system displays a logout confirmation dialog. The admin confirms the logout action. The system logs out the admin and ends the session.
Alternate / Exception Flow	<p>E1: Logout Cancelled</p> <ul style="list-style-type: none"> If the admin cancels the action, the session remains active.

AD-UC-04 - Approve Garage Registration

Use Case ID	AD-UC-04
Use Case Name	Approve Garage Registration
Primary Actor	Admin
Description	This use case allows the admin to review and approve a newly registered garage.
Trigger	A garage submits a registration request.
Preconditions	Garage owners have submitted the required documents.
Postconditions	The garage account is activated and becomes visible to drivers.
Main Flow	<ol style="list-style-type: none">1. The admin opens the list of pending garage registrations.2. The admin reviews the submitted details and documents.3. The admin selects the Approve action.4. The system activates the garage account.
Alternate / Exception Flow	E1: Incomplete or Unclear Documents <ul style="list-style-type: none">• If documents are missing or unclear, the admin requests resubmission.

AD-UC-05 - Reject Garage Registration

Use Case ID	AD-UC-05
Use Case Name	Reject Garage Registration
Primary Actor	Admin
Description	This use case allows the admin to reject a garage registration that does not meet system requirements.
Trigger	A garage submits a registration request.
Preconditions	Garage has submitted a registration request.
Postconditions	The garage is notified of the rejection with a reason.
Main Flow	<ol style="list-style-type: none">1. The admin opens the list of pending garage registrations.2. The admin reviews the submitted details.3. The admin selects the Reject action.

	4. The system notifies the garage of the rejection reason.
Alternate / Exception Flow	E1: Request for Additional Documents <ul style="list-style-type: none"> • Instead of rejecting, the admin may request additional documents.

AD-UC-06 - View list of educational content

Use Case ID	AD-UC-06
Use Case Name	View list of educational content
Primary Actor	Admin
Description	This use case allows the admin to view a list of educational content available in the system.
Trigger	The admin accesses the Education Center module.
Preconditions	The admin is logged in.
Postconditions	A list of educational content is displayed.
Main Flow	<ol style="list-style-type: none"> 1. The admin navigates to the Education Center module. 2. The system retrieves all educational content. 3. The system displays the list of contents.
Alternate / Exception Flow	E1: No Content Available <ul style="list-style-type: none"> • If no educational content exists, the system displays an empty list message.

AD-UC-07 - Add Educational Content

Use Case ID	AD-UC-07
Use Case Name	Add Educational Content
Primary Actor	Admin
Description	This use case allows the admin to add new educational content to the Education Center.
Trigger	The admin selects the Add Content option.
Preconditions	The admin is logged in.
Postconditions	The newly added educational content becomes visible to drivers.

Main Flow	<ol style="list-style-type: none"> 1. The admin opens the content management page. 2. The admin selects Add Content. 3. The admin enters the required content details. 4. The admin submits the content. 5. The system validates and saves the content.
Alternate / Exception Flow	<p>E1: Invalid or Incomplete Content</p> <ul style="list-style-type: none"> • If validation fails, the system displays error messages and prompts correction.

AD-UC-08 - Update Educational Content

Use Case ID	AD-UC-08
Use Case Name	Update Educational Content
Primary Actor	Admin
Description	This use case allows the admin to update existing educational content.
Trigger	The admin selects an existing content item to edit.
Preconditions	<ul style="list-style-type: none"> • The admin is logged in. • Educational content exists.
Postconditions	The updated educational content is visible to drivers.
Main Flow	<ol style="list-style-type: none"> 1. The admin opens the content management page. 2. The admin selects an educational content item. 3. The admin edits the content details. 4. The admin submits the changes. 5. The system validates and updates the content.
Alternate / Exception Flow	<p>E1: Invalid or Incomplete Content</p> <ul style="list-style-type: none"> • If validation fails, the system displays error messages.

AD-UC-09 - Delete Educational Content

Use Case ID	AD-UC-09
Use Case Name	Delete Educational Content
Primary Actor	Admin

Description	This use case allows the admin to delete educational content from the system.
Trigger	The admin selects the Delete option for a content item.
Preconditions	<ul style="list-style-type: none"> • The admin is logged in. • Educational content exists.
Postconditions	The selected educational content is deleted and no longer visible to drivers.
Main Flow	<ol style="list-style-type: none"> 1. The admin opens the education content management page. 2. The admin selects an educational content item. 3. The admin selects Delete. 4. The system displays a confirmation dialog. 5. The admin confirms the deletion. 6. The system deletes the content.
Alternate / Exception Flow	E1: Deletion Cancelled <ul style="list-style-type: none"> • If the admin cancels the action, the content remains unchanged.

AD-UC-10 - Search users

Use Case ID	AD-UC-10
Use Case Name	Search users
Primary Actor	Admin
Description	This use case allows the admin to search for users within the system using keywords.
Trigger	The Admin enters a search keyword.
Preconditions	The admin is logged in.
Postconditions	Users matching the search criteria are displayed.
Main Flow	<ol style="list-style-type: none"> 1. The admin accesses the system search field. 2. The admin enters a keyword or phrase. 3. The system validates the search input. 4. The system searches the relevant data repository. 5. The system displays results that match the entered keyword.
Alternate / Exception Flow	E1: No Results Found

	<ul style="list-style-type: none"> • If no matching records are found, the system displays a “No results found” message. • The system allows the admin to enter a new search term.
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AD-UC-11 - View list users

Use Case ID	AD-UC-11
Use Case Name	View list of users
Primary Actor	Admin
Description	This use case allows the admin to view a list of users in the system, including their moderation status.
Trigger	The admin opens the user management module.
Preconditions	The admin is logged in.
Postconditions	A list of users is displayed to the admin.
Main Flow	<ol style="list-style-type: none"> 1. The admin navigates to the user management page. 2. The system retrieves the list of users. 3. The system displays users along with relevant details such as: <ul style="list-style-type: none"> • User name • Account status (active, warned, blocked, reported)
Alternate / Exception Flow	<p>E1: No Users Available</p> <ul style="list-style-type: none"> • If no users exist in the system, the system displays an empty list message.

AD-UC-12 - Filter users by status

Use Case ID	AD-UC-12
Use Case Name	Filter users by status
Primary Actor	Admin
Description	This use case allows the admin to filter users based on their moderation status.
Trigger	The admin selects filter options.
Preconditions	<ul style="list-style-type: none"> • The admin is logged in.
Postconditions	Users matching the selected filter criteria are displayed.

Main Flow	<ol style="list-style-type: none"> 1. The admin opens the user management page. 2. The admin selects one or more filter options: <ul style="list-style-type: none"> • Reported • Warned • Blocked 3. The admin applies the selected filters. 4. The system retrieves users that match the selected status. 5. The system displays the filtered list of users.
Alternate / Exception Flow	<p>E1: No Matching Users</p> <ul style="list-style-type: none"> • If no users match the selected filters, the system displays an empty results message.

AD-UC-13 - Warn user

Use Case ID	AD-UC-13
Use Case Name	Warn user
Primary Actor	Admin
Description	This use case allows the admin to issue a warning to a user for violating platform rules.
Trigger	A garage submits a registration request.
Preconditions	<ul style="list-style-type: none"> • The admin is logged in • The selected user exists.
Postconditions	<ul style="list-style-type: none"> • The user receives a warning notification containing the reason. • The user's status is updated to Warned.
Main Flow	<ol style="list-style-type: none"> 1. The admin searches, views, or filters the list of users. 2. The admin selects a specific user. 3. The admin selects the Warn User action. 4. The system prompts the admin to enter a warning reason. 5. The admin enters the warning reason. 6. The system validates the entered reason.

	<p>7. The system sends a warning notification to the user including the reason.</p> <p>8. The system updates the user's moderation status.</p>
Alternate / Exception Flow	<p>E1: Missing Warning Reason</p> <ul style="list-style-type: none"> If no reason is entered, the system prompts the admin to provide a reason before proceeding. <p>E2: Admin Cancels Action</p> <ul style="list-style-type: none"> If the admin cancels the action, no warning is issued.

AD-UC-14 - Block user

Use Case ID	AD-UC-14
Use Case Name	Block User
Primary Actor	Admin
Description	This use case allows the admin to block a user from accessing the system due to serious or repeated violations.
Trigger	The admin selects a user from the user list, search results, or filtered list.
Preconditions	<ul style="list-style-type: none"> The admin is logged in The selected user exists.
Postconditions	<ul style="list-style-type: none"> The user account is blocked. The user receives a notification containing the reason for blocking.
Main Flow	<ol style="list-style-type: none"> The admin searches for, views, or filters the list of users. The admin selects a specific user. The admin selects the Block User action. The system displays a confirmation dialog. The system prompts the admin to enter a blocking reason. The admin enters the reason. The admin confirms the action. The system blocks the user account. The system notifies the user with the blocking reason.

Alternate / Exception Flow	<p>E1: Admin Cancels Action</p> <ul style="list-style-type: none"> If the admin cancels the confirmation, the user account remains unchanged. <p>E2: Missing Blocking Reason</p> <ul style="list-style-type: none"> If no reason is provided, the system prompts the admin to enter a reason.
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AD-UC-15 - Take down post

Use Case ID	AD-UC-15
Use Case Name	Take down post
Primary Actor	Admin
Description	This use case allows the admin to remove posts that violate platform policies.
Trigger	The admin selects a post from the post list or search results.
Preconditions	<ul style="list-style-type: none"> The admin is logged in. The selected post exists.
Postconditions	The post is removed and no longer visible to users.
Main Flow	<ol style="list-style-type: none"> The admin searches for or views posts. The admin selects a specific post. The admin selects the Take Down Post action. The system displays a confirmation dialog. The admin confirms the action. The system removes the post from the platform.
Alternate / Exception Flow	<p>E1: Admin Cancels Action</p> <ul style="list-style-type: none"> If the admin cancels the action, the post remains visible.

Use Case Specification for Driver app

DR-UC-01 - Driver Sign Up

Use Case ID	DR-UC-01
Use Case Name	Driver Sign Up
Primary Actor	Driver
Description	This use case allows a new driver to create an account in the system.

Trigger	The driver selects the Sign Up option.
Preconditions	The driver is not registered in the system.
Postconditions	A new driver account is successfully created.
Main Flow	<ol style="list-style-type: none"> 1. The system displays the driver registration form. 2. The driver enters the required details, including first name, last name, phone number, and password. 3. The system validates the entered information. 4. The system saves the driver account and confirms successful registration.
Alternate / Exception Flow	<p>E1: Invalid Input</p> <ul style="list-style-type: none"> • If any required field is invalid or missing, the system displays validation errors and prompts the driver to correct them. <p>E2: Phone Number Already Exists</p> <ul style="list-style-type: none"> • If the phone number is already registered, the system displays an error message and prevents account creation.

DR-UC-02 - Driver Login

Use Case ID	DR-UC-02
Use Case Name	Driver Login
Primary Actor	Driver
Description	This use case allows a registered driver to log in to the system.
Trigger	The driver selects the Login option.
Preconditions	The driver is registered in the system.
Postconditions	The driver is successfully logged in.
Main Flow	<ol style="list-style-type: none"> 1. The driver enters a phone number and password. 2. The system validates the credentials. 3. The system grants access to the driver dashboard.
Alternate / Exception Flow	<p>E1: Invalid Credentials</p> <ul style="list-style-type: none"> • If the entered credentials are incorrect, the system displays an

	error message and prompts the driver to retry.
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DR-UC-03 - Driver Logout

Use Case ID	DR-UC-03
Use Case Name	Driver Logout
Primary Actor	Driver
Description	This use case allows the driver to securely log out of the system with confirmation.
Trigger	The driver selects the Logout option.
Preconditions	The driver is logged in.
Postconditions	The driver session is terminated.
Main Flow	<ol style="list-style-type: none"> 1. The system displays a logout confirmation dialog. 2. The driver confirms the logout action. 3. The system logs out the driver and ends the session.
Alternate / Exception Flow	E1: Logout Cancelled <ul style="list-style-type: none"> • If the driver cancels the logout action, the session remains active.

DR-UC-04 - Create Driver Profile

Use Case ID	DR-UC-04
Use Case Name	Create Driver Profile
Primary Actor	Driver
Description	This use case allows a driver to create a personal profile in the system.
Trigger	The driver accesses the profile setup page.
Preconditions	The driver is logged in.
Postconditions	The driver profile is created and saved.
Main Flow	<ol style="list-style-type: none"> 1. The system displays the profile creation form. 2. The driver enters personal details such as name, phone number, email, and address. 3. The system validates the entered information. 4. The system saves the driver profile.
Alternate / Exception Flow	E1: Missing Required Information <ul style="list-style-type: none"> • If required fields are missing, the system displays validation errors and

	prompts the driver to complete the form.
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DR-UC-05 - Update Driver Profile

Use Case ID	DR-UC-05
Use Case Name	Update Driver Profile
Primary Actor	Driver
Description	This use case allows a driver to update existing profile information.
Trigger	The driver selects the Edit Profile option.
Preconditions	<ul style="list-style-type: none">• The driver is logged in.• The driver profile already exists.
Postconditions	The driver profile is updated successfully.
Main Flow	<ol style="list-style-type: none">1. The system displays the existing profile details.2. The driver modifies one or more profile fields.3. The driver submits the updated information.4. The system validates and saves the changes.
Alternate / Exception Flow	E1: Invalid Input <ul style="list-style-type: none">• If the updated information is invalid, the system displays error messages and requests correction.

DR-UC-06 — Register Vehicle

Use Case ID	DR-UC-06
Use Case Name	Register Vehicle
Primary Actor	Driver
Description	Allows the driver to register a vehicle by providing required vehicle details.
Trigger	The driver selects the “Add Vehicle” option.
Preconditions	The driver is logged into the system.
Postconditions	The vehicle is successfully registered and stored in the system.
Main Flow	<ol style="list-style-type: none">1. The driver enters vehicle details (make, model, type, year, color).2. The driver saves the information.3. The system validates and stores the vehicle data.

Alternate / Exception Flow	<p>E1: Invalid Credentials</p> <ul style="list-style-type: none"> If the driver is not authenticated or enters invalid credentials, the system shall deny access and prompt the driver to log in again. <p>E2: Invalid Vehicle Data</p> <ul style="list-style-type: none"> If any required vehicle field is missing or invalid, the system shall display an error message and request the driver to correct the information.
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DR-UC-07 — Update Vehicle Details

Use Case ID	DR-UC-07
Use Case Name	Update Vehicle Details
Primary Actor	Driver
Description	Allows the driver to update details of a previously registered vehicle.
Trigger	The driver selects the option to edit vehicle information.
Preconditions	The vehicle is already registered in the system.
Postconditions	The vehicle information is successfully updated.
Main Flow	<ol style="list-style-type: none"> The driver selects a registered vehicle. The driver modifies the vehicle details. The driver saves the changes. The system updates the vehicle record.
Alternate / Exception Flow	<p>E1: Unauthorized Access</p> <ul style="list-style-type: none"> If the driver is not authenticated, the system shall redirect the driver to the login page. <p>E2: Invalid Update Data</p> <ul style="list-style-type: none"> If updated vehicle information is invalid, the system shall reject the changes and display an error message.

DR-UC-08 — View Home Dashboard

Use Case ID	DR-UC-08
Use Case Name	View Home Dashboard
Primary Actor	Driver
Description	Displays an overview of vehicle health, maintenance reminders, and recent maintenance activity..
Trigger	The driver opens the Home page of the application.
Preconditions	At least one vehicle is registered.
Postconditions	The dashboard information is displayed to the driver.
Main Flow	<ol style="list-style-type: none"> 1. The system displays the vehicle's current health status. 2. The system shows upcoming maintenance reminders. 3. The system displays the most recent maintenance record.
Alternate / Exception Flow	<p>E1: Invalid Credentials</p> <ul style="list-style-type: none"> • If the driver's session is invalid or expired, the system shall prompt the driver to log in again. <p>E2: No Vehicle Registered</p> <ul style="list-style-type: none"> • If no vehicle is registered, the system shall display a message requesting the driver to register a vehicle.

DR-UC-09 — Update Maintenance Status

Use Case ID	DR-UC-09
Use Case Name	Update Maintenance Status
Primary Actor	Driver
Description	Allows the driver to update the maintenance status of a registered vehicle.
Trigger	The driver selects the option to update maintenance status.
Preconditions	The driver is logged in and a vehicle is registered.

Postconditions	The vehicle's maintenance status is updated and recorded in the system.
Main Flow	<ol style="list-style-type: none"> 1. The driver selects a registered vehicle. 2. The driver enters maintenance details (service type, date, status). 3. The driver saves the maintenance update. 4. The system stores the updated maintenance information.
Alternate / Exception Flow	<p>E1: Unauthorized Access</p> <ul style="list-style-type: none"> • If the driver is not authenticated, the system shall block access and prompt for login. <p>E2: Invalid Maintenance Data</p> <ul style="list-style-type: none"> • If maintenance details are missing or invalid, the system shall display an error and request correction.

DR-UC-10 — View Maintenance History

Use Case ID	DR-UC-10
Use Case Name	View Maintenance History
Primary Actor	Driver
Description	Allows the driver to view past maintenance records of a registered vehicle.
Trigger	The driver selects the “Maintenance History” option.
Preconditions	The vehicle has at least one recorded maintenance entry.
Postconditions	The maintenance history is displayed to the driver.
Main Flow	<ol style="list-style-type: none"> 1. The driver selects a registered vehicle. 2. The system retrieves maintenance records. 3. The system displays the maintenance history in chronological order.
Alternate / Exception Flow	<p>E1: Unauthorized Access</p> <ul style="list-style-type: none"> • If the driver's session is invalid, the system shall prompt the driver to log in again.

	<p>E2: No Maintenance Records</p> <ul style="list-style-type: none"> • If no maintenance records exist, the system shall display “No maintenance history available.”
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DR-UC-11 — Set Maintenance Reminder

Use Case ID	DR-UC-11
Use Case Name	Set Maintenance Reminder
Primary Actor	Driver
Description	Allows drivers to set automated reminders.
Trigger	The driver selects the option to add a maintenance reminder.
Preconditions	The driver is logged in and a vehicle is registered.
Postconditions	The maintenance reminder is saved and scheduled.
Main Flow	<ol style="list-style-type: none"> 1. The driver selects a registered vehicle. 2. The driver enters reminder details (maintenance type and date). 3. The driver saves the reminder. 4. The system schedules the reminder notification.
Alternate / Exception Flow	<p>E1: Invalid Date</p> <ul style="list-style-type: none"> • If the selected reminder date is invalid or in the past, the system shall display an error message and request a valid date. <p>E2: Unauthorized Access</p> <ul style="list-style-type: none"> • If the driver is not authenticated, the system shall prompt re-login.

DR-UC-12 — View Education Content

Use Case ID	DR-UC-12
Use Case Name	View Education Content
Primary Actor	Driver
Description	This use case allows a driver to view educational guides related to vehicle

	maintenance and safety through the Education Center.
Trigger	The driver opens the Education Center.
Preconditions	The driver is logged into the system.
Postconditions	Available educational content is displayed to the driver.
Main Flow	<ol style="list-style-type: none">1. The driver navigates to the Education Center from the application menu.2. The system retrieves all available educational guides related to vehicle maintenance and safety.3. The system displays the retrieved educational content in a structured list format.4. The driver scrolls through the list to browse available guides.
Alternate / Exception Flow	E1: No Educational Content Available <ul style="list-style-type: none">• If no educational guides exist in the system, the system displays an informational message indicating that no content is currently available.• The system provides an option to refresh or return to the previous screen.

DR-UC-13 — Search Education Content

Use Case ID	DR-UC-13
Use Case Name	Search Education Content
Primary Actor	Driver
Description	This use case allows drivers to search educational content using keywords.
Trigger	The driver enters a search term.
Preconditions	The driver is logged in.

Postconditions	Educational content matching the search criteria is displayed.
Main Flow	<ol style="list-style-type: none">1. The driver accesses the search input within the Education Center.2. The driver enters a keyword or phrase related to the desired educational content.3. The system validates the search input.4. The system filters the educational content based on the entered keyword.5. The system displays a list of educational guides that match the search criteria.
Alternate / Exception Flow	E1: No Matching Results Found <ul style="list-style-type: none">• If the entered keyword does not match any educational content, the system displays a “No results found” message.• The system allows the driver to modify the search keyword.

DR-UC-14 — View Community Posts

Use Case ID	DR-UC-14
Use Case Name	View Community Posts
Primary Actor	Driver
Description	This use case allows drivers to view posts shared by the community.
Trigger	The driver opens the Community.
Preconditions	The driver is logged in.
Postconditions	Community posts are displayed.
Main Flow	<ol style="list-style-type: none">1. The driver navigates to the Community.2. The system retrieves community posts.3. The system displays the posts in a feed format.

Alternate / Exception Flow	E1: No Posts Available <ul style="list-style-type: none">• If no posts exist, the system displays a message indicating no community posts are available.• The system may prompt the driver to create a new post.
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DR-UC-15 — View My Posts

Use Case ID	DR-UC-15
Use Case Name	View My Posts
Primary Actor	Driver
Description	This use case allows drivers to view a list of community posts that they have personally created.
Trigger	The driver selects My Posts from the Community section.
Preconditions	<ul style="list-style-type: none">• The driver is logged in.• The driver has created at least one community post.
Postconditions	A list of the driver's own community posts is displayed.
Main Flow	<ol style="list-style-type: none">1. The driver navigates to the Community section.2. The driver selects My Posts.3. The system retrieves posts created by the driver.4. The system displays the posts in a list format.
Alternate / Exception Flow	E1: No Posts Created <ul style="list-style-type: none">• If the driver has not created any posts, the system displays an informational message.

DR-UC-16 — Create Post

Use Case ID	DR-UC-16
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Use Case Name	Create Post
Primary Actor	Driver
Description	This use case allows drivers to create and publish a community post.
Trigger	The driver selects Create Post.
Preconditions	The driver is logged in.
Postconditions	The post is successfully published.
Main Flow	<ol style="list-style-type: none"> 1. The driver selects the Create Post option. 2. The system displays a post creation form. 3. The driver enters post content. 4. The system validates the content. 5. The system saves the post. 6. The system publishes the post to the community feed.
Alternate / Exception Flow	<p>E1: Validation Error</p> <ul style="list-style-type: none"> • If the content fails validation, the system displays an error message. • The driver is prompted to correct the input.

DR-UC-17 — Edit Post

Use Case ID	DR-UC-17
Use Case Name	Edit Post
Primary Actor	Driver
Description	This use case allows drivers to edit their existing community posts.
Trigger	The driver selects Edit on a post.
Preconditions	The driver owns the post.
Postconditions	The post is updated.
Main Flow	<ol style="list-style-type: none"> 1. The driver selects a post they own. 2. The driver selects the Edit option.

	<ol style="list-style-type: none"> 3. The system displays the post in editable form. 4. The driver updates the content. 5. The driver confirms the update. 6. The system saves and displays the updated post.
Alternate / Exception Flow	<p>E1: Edition Cancelled</p> <ul style="list-style-type: none"> • If the driver cancels, the system aborts the operation.

DR-UC-18 — Delete Post

Use Case ID	DR-UC-18
Use Case Name	Delete Post
Primary Actor	Driver
Description	This use case allows drivers to delete their community posts.
Trigger	The driver selects Delete
Preconditions	The driver owns the post.
Postconditions	The post is removed from the system.
Main Flow	<ol style="list-style-type: none"> 1. The driver selects a post. 2. The driver chooses Delete. 3. The system requests confirmation. 4. The driver confirms deletion. 5. The system deletes the post.
Alternate / Exception Flow	<p>E1: Deletion Cancelled</p> <ul style="list-style-type: none"> • If the driver cancels, the system aborts the operation.

DR-UC-19 — Comment on Post

Use Case ID	DR-UC-19
Use Case Name	Comment on Post
Primary Actor	Driver

Description	This use case allows drivers to comment on community posts.
Trigger	The driver selects a comment.
Preconditions	The post exists.
Postconditions	A comment is added to the post.
Main Flow	<ol style="list-style-type: none"> 1. The driver selects a post. 2. The driver chooses a comment. 3. The system displays a comment input field. 4. The driver enters a comment. 5. The system validates and saves the comment. 6. The comment is displayed.
Alternate / Exception Flow	None

DR-UC-20 — Delete Comment

Use Case ID	DR-UC-20
Use Case Name	Delete Comment
Primary Actor	Driver
Description	This use case allows a driver to delete a comment they have posted on a community post.
Trigger	The driver selects the Delete Comment option.
Preconditions	<ul style="list-style-type: none"> • The driver is logged in. • The comment exists. • The driver is the owner of the comment.
Postconditions	The comment is permanently removed from the system.
Main Flow	<ol style="list-style-type: none"> 1. The driver selects a comment they have authored. 2. The driver chooses the Delete Comment option.

	<ol style="list-style-type: none"> 3. The system displays a confirmation prompt. 4. The driver confirms the deletion. 5. The system removes the comment. 6. The system updates the post's comment list.
Alternate / Exception Flow	<p>E1: Deletion Cancelled</p> <ul style="list-style-type: none"> • If the driver cancels the deletion, the system aborts the operation. • The comment remains unchanged.

DR-UC-21 — Like Community Post

Use Case ID	DR-UC-21
Use Case Name	Like Community Post
Primary Actor	Driver
Description	This use case allows drivers to express appreciation for a community post by liking or unliking it.
Trigger	Driver taps Like
Preconditions	<ul style="list-style-type: none"> • The driver is logged in. • The community post exists.
Postconditions	The "like" status of the post is updated.
Main Flow	<ol style="list-style-type: none"> 1. The driver selects a community post. 2. The driver taps the Like button. 3. The system records the like action for the driver. 4. The system increments and displays the updated like count.
Alternate / Exception Flow	<p>E1: Unlike Action</p> <ul style="list-style-type: none"> • If the post was previously liked by the driver, the system removes the like. • The system decrements and updates the like count.

DR-UC-22 — Report Community Content

Use Case ID	DR-UC-22
Use Case Name	Report Community Content
Primary Actor	Driver
Description	This use case allows drivers to report inappropriate or abusive community content for moderation.
Trigger	The driver selects the Report option.
Preconditions	<ul style="list-style-type: none">• The driver is logged in.• The content exists.
Postconditions	The report is successfully submitted for review.
Main Flow	<ol style="list-style-type: none">1. The driver selects a post or comment.2. The driver chooses the Report option.3. The system displays available reporting reasons.4. The driver selects a reason.5. The system submits the report to the moderation system.6. The system confirms successful report submission.
Alternate / Exception Flow	None

DR-UC-23 — Bookmark Community Content

Use Case ID	DR-UC-23
Use Case Name	Bookmark Community Content
Primary Actor	Driver
Description	This use case allows drivers to bookmark community posts or comments for later reference and easy access.
Trigger	The driver selects the Bookmark option.
Preconditions	<ul style="list-style-type: none">• The driver is logged in.• The content exists.
Postconditions	The content is added to the driver's bookmark list.

Main Flow	<ol style="list-style-type: none"> 1. The driver selects a post or comment. 2. The driver chooses the Bookmark option. 3. The system adds the content to the driver's bookmark list. 4. The system confirms successful bookmark addition.
Alternate / Exception Flow	<p>E1: Unbookmark Action</p> <ul style="list-style-type: none"> • If the post was previously bookmarked by the driver, the system removes the post from the user bookmark list. • The system decrements and updates the bookmark count.

DR-UC-24 — View Bookmark List

Use Case ID	DR-UC-24
Use Case Name	View Bookmark List
Primary Actor	Driver
Description	This use case allows drivers to view their collection of bookmarked community content.
Trigger	The driver navigates to the Bookmarks section.
Preconditions	<ul style="list-style-type: none"> • The driver is logged in.
Postconditions	The report is successfully submitted for review.
Main Flow	<ol style="list-style-type: none"> 1. The driver accesses the Bookmarks section in the app. 2. The system retrieves the driver's bookmarked content. 3. The system displays the list of bookmarks.
Alternate / Exception Flow	<p>E1: No bookmarked items</p> <ul style="list-style-type: none"> • The system displays a message indicating that the bookmark list is empty.

DR-UC-25 — Locate Nearby Services

Use Case ID	DR-UC-25
Use Case Name	Locate Nearby Services
Primary Actor	Driver
Description	This use case allows drivers to locate nearby garages, fuel stations, and essential services based on their current location.
Trigger	Driver opens Service Locator
Preconditions	The driver opens the Service Locator.
Postconditions	Nearby services are displayed.
Main Flow	<ol style="list-style-type: none">1. The driver opens the Service Locator.2. The system requests access to the driver's current location.3. The system retrieves the driver's location coordinates.4. The system searches for nearby services.5. The system displays the services in a map or list view.
Alternate / Exception Flow	E1: Location Access Denied <ol style="list-style-type: none">1. If location access is denied, the system displays an error message.2. The system instructs the driver to enable location permissions.

DR-UC-26 — Filter Nearby Services

Use Case ID	DR-UC-26
Use Case Name	Filter Nearby Service
Primary Actor	Driver
Description	This use case allows drivers to refine nearby service results using filters.
Trigger	Driver applies filter
Preconditions	Nearby services are already loaded.
Postconditions	Filtered services are displayed.
Main Flow	<ol style="list-style-type: none">1. The driver selects the filter option.2. The system displays available filter criteria.3. The driver selects services4. The system updates the services accordingly.
Alternate / Exception Flow	E1: No Matching Services

	1. If no services match the applied filters, the system displays an informational message.
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DR-UC-27 — View Service Details

Use Case ID	DR-UC-27
Use Case Name	View Service Details
Primary Actor	Driver
Description	This use case allows drivers to view detailed information about a selected service.
Trigger	The driver selects service
Preconditions	The selected service exists.
Postconditions	Service details are displayed.
Main Flow	<ol style="list-style-type: none">1. The driver selects a service from the list or map.2. The system retrieves service details.3. The system displays detailed service information.
Alternate / Exception Flow	None

DR-UC-28 — Navigate to Service Location

Use Case ID	DR-UC-28
Use Case Name	Navigate to Service Location
Primary Actor	Driver
Description	This use case allows drivers to navigate to a selected service location.
Trigger	The driver selects the Navigate option.
Preconditions	<ul style="list-style-type: none">• Location services are enabled.• The selected service exists.
Postconditions	Navigation to the service location begins.
Main Flow	<ol style="list-style-type: none">1. The driver selects a service.2. The driver chooses the Navigate option.3. The system opens the map application.4. The system generates a navigation route.5. The system starts turn-by-turn navigation.
Alternate / Exception Flow	None

DR-UC-29 — Chat with AI Assistant

Use Case ID	DR-UC-29
Use Case Name	Chat with AI Assistant
Primary Actor	Driver
Description	This use case allows drivers to interact with an AI assistant for vehicle-related guidance and support.
Trigger	The driver opens the AI Assistant.
Preconditions	Vehicle data is available.
Postconditions	AI-generated advice is displayed.
Main Flow	<ol style="list-style-type: none">1. The driver opens the AI Assistant.2. The system initializes the AI session.3. The driver submits a query.4. The system processes the request using AI services.5. The system generates and displays a response.
Alternate / Exception Flow	E1: AI unavailable

DR-UC-30 — View AI Chat History

Use Case ID	DR-UC-30
Use Case Name	View AI Chat History
Primary Actor	Driver
Description	This use case allows drivers to view previous interactions with the AI assistant.
Trigger	The driver opens the chat history.
Preconditions	Chat history exists.
Postconditions	AI chat history is displayed.
Main Flow	<ol style="list-style-type: none">1. The driver selects the Chat History option.2. The system retrieves stored AI conversations.3. The system displays the conversations in chronological order.
Alternate / Exception Flow	None

DR-UC-31 — Delete AI Chat History

Use Case ID	DR-UC-31
Use Case Name	Delete AI Chat History
Primary Actor	Driver

Description	This use case allows drivers to delete their AI chat history.
Trigger	The driver selects Delete History.
Preconditions	Chat history exists.
Postconditions	Chat history is permanently deleted.
Main Flow	<ol style="list-style-type: none"> 1. The driver selects the Delete History option. 2. The system displays a confirmation dialog. 3. The driver confirms the deletion. 4. The system deletes the chat history.
Alternate / Exception Flow	E1: Deletion Cancelled 1. If the driver cancels the deletion, the system aborts the operation.

DR-UC-32- Book Garage Appointment

Use Case ID	DR-UC-32
Use Case Name	Book Garage Appointment
Primary Actor	Driver
Description	This use case allows drivers to book garage appointments.
Trigger	Driver selects garage.
Preconditions	The garage is available.
Postconditions	Appointment is requested.
Main Flow	<ol style="list-style-type: none"> 1. The driver chooses a garage from the provided list . 2. The driver chooses a date. 3. The driver enters the service he needs. 4. The driver sends a request.
Alternate / Exception Flow	E1: No slots available <ul style="list-style-type: none"> • If there is no slot available for appointment, the system displays a ' no slots available ' message.

DR-UC-33-View list of Appointments

Use Case ID	DR-UC-33
Use Case Name	View list of Appointments
Primary Actor	Driver

Description	Allows the driver to view appointments and track the current status of a garage appointment and service.
Preconditions	Driver is logged in and has a booked appointment
Postconditions	Current appointment status is displayed to the driver.
Main Flow	<ol style="list-style-type: none"> 1. The driver navigates to the maintenance page and selects appointments. 2. System displays appointment list 3. Driver Selects an appointment 4. System displays appointment detail together with the status such as (Pending, Approved, In Service, Completed)
Alternate / Exception Flow	E1: No appointment available <ul style="list-style-type: none"> • If an appointment is canceled, the system shows a canceled status.

DR-UC-34-Reschedule Appointments

Use Case ID	DR-UC-34
Use Case Name	Reschedule Appointments
Primary Actor	Driver
Description	Allows the driver to reschedule the already booked appointments.
Preconditions	Driver is logged in and has a booked appointment that is not yet accepted by the garages,
Postconditions	Appointment rescheduled.
Main Flow	<ol style="list-style-type: none"> 1. The driver navigates to the maintenance page and selects appointments. 2. System displays appointment list 3. Driver Selects an appointment 4. System displays appointment detail together with the status such as (Pending, Approved, In Service, Completed) <p>Driver clicks on 'reschedule' if the status is still 'pending'</p>
Alternate / Exception Flow	E1: Rescheduling Time Limit Exceeded

	<ul style="list-style-type: none"> If the driver attempts to reschedule after the allowed rescheduling time window (e.g., less than 2 hours before the appointment), the system shall reject the request and notify the driver.
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DR-UC-35- Cancel Garage Appointment

Use Case ID	DR-UC-35
Use Case Name	Cancel Garage Appointment
Primary Actor	Driver
Description	This use case allows drivers to cancel appointments.
Trigger	Driver cancels appointment.
Preconditions	Appointment already exists.
Postconditions	Appointment is cancelled.
Main Flow	<ol style="list-style-type: none"> Driver clicks on appointments page The driver selects the appointment he/she booked before. The driver click on Cancel button
Alternate / Exception Flow	E1: Appointment does not exist <ul style="list-style-type: none"> If the appointment is already canceled or doesn't exit the system displays appointment doesn't exist' message

DR-UC-36- Request Onsite Assistance

Use Case ID	DR-UC-36
Use Case Name	Request Onsite Assistance
Primary Actor	Driver
Description	This use case allows drivers to request roadside mechanics for car breakdown.
Trigger	The driver requests assistance.
Preconditions	Driver has selected a garage nearby on the service locator The garage has an available mechanic.
Postconditions	A request is sent and the driver can contact the garage for more detail.
Main Flow	<ol style="list-style-type: none"> Driver navigates to the service locator and search nearby garages

	<ol style="list-style-type: none"> 2. Driver select a garage with onsite assistant service available, 3. The driver sends a request to the garage.
Alternate / Exception Flow	<p>E1: no mechanic unavailable.</p> <ul style="list-style-type: none"> • If no mechanic is available, then the driver looks for optional garages.

DR-UC-37- Rate Garage Service

Use Case ID	DR-UC-37
Primary Actor	Driver
Use Case Name	Rate Garage Service
Description	Allows drivers to rate garage services.
Trigger	Service completed for driver
Preconditions	Completed service
Postconditions	Rating saved.
Main Flow	<ol style="list-style-type: none"> 1. driver receives a notification about a service completion. 2. The system displays a rating input 3. The driver Submit rating. 4. The system then Saves feedback.
Alternate / Exception Flow	<p>E1: Driver closes rating prompt</p> <ul style="list-style-type: none"> • If the driver closes the rating prompt without submitting a rating, the system shall dismiss the prompt and no rating or review shall be saved

DR-UC-38- Update App Settings

Use Case ID	DR-UC-38
Use Case Name	Update App Settings
Primary Actor	Driver
Description	The App allows drivers to change app settings.
Trigger	The driver opens settings.
Preconditions	The driver is logged in.
Postconditions	Settings updated.
Main Flow	<ol style="list-style-type: none"> 1. The driver clicks on the setting

	<ol style="list-style-type: none"> 2. The driver changes the theme or language. 3. The driver Saves the changes 4. System applies and stores settings
Alternate / Exception Flow	<p>E1: System fails to save the updated settings</p> <ul style="list-style-type: none"> • The system displays “Unable to save settings. Please try again later.” message

DR-UC-39- View Notifications

Use Case ID	DR-UC-39
Primary Actor	Driver
Use Case Name	View Notifications
Description	Allows drivers to view notifications.
Trigger	Notification received.
Preconditions	The driver is logged in.
Postconditions	Notifications displayed.
Main Flow	<ol style="list-style-type: none"> 1. The driver opens the app 2. The driver navigates to notification section 3. The system displays list of notifications
Alternate / Exception Flow	<p>E1: No notification available</p> <ul style="list-style-type: none"> • If there is no notification, the system displays a ‘no notification’ message.

Use Case Specification for Garage app

GA-UC-01 - Garage Sign Up

Use Case ID	GA-UC-01
Use Case Name	Garage Sign Up
Primary Actor	Garage Owner
Description	Allows garage owners to register in the system.
Trigger	The garage owner selects the Sign Up Option.
Preconditions	The garage owner is not already registered.
Postconditions	A garage account is created and marked as pending for admin approval.
Main Flow	<ol style="list-style-type: none"> 1. The garage owner opens the registration form.

	<ol style="list-style-type: none"> 2. The garage owner enters the garage (location, name, license doc) and owner details. 3. The system validates the provided information. 4. The system creates a new garage account.
Alternate / Exception Flow	<p>E1: Invalid or Missing Information</p> <ul style="list-style-type: none"> • The system displays validation errors and requests correction.

GA-UC-02 - Garage Login

Use Case ID	GA-UC-02
Use Case Name	Garage Login
Primary Actor	Garage Owner
Description	Allows garage owners to log in to the system.
Trigger	The garage owner selects the Login option.
Preconditions	The garage account exists.
Postconditions	The garage owner is successfully logged into the system.
Main Flow	<ol style="list-style-type: none"> 1. The garage owner enters login credentials. 2. The system validates the credentials. 3. The system grants access to the Garage App.
Alternate / Exception Flow	<p>E1: Invalid Credentials</p> <ul style="list-style-type: none"> • The system displays an error message.

GA-UC-03 - Garage Logout

Use Case ID	GA-UC-03
Use Case Name	Garage Logout
Primary Actor	Garage Owner
Description	Allows garage owners to log out of the system securely.
Trigger	The garage owner selects the Logout option.
Preconditions	The garage owner is logged in.
Postconditions	The user session is terminated.
Main Flow	<ol style="list-style-type: none"> 1. The system displays a logout confirmation dialog. 2. The garage owner confirms the action. 3. The system logs the owner out.
Alternate / Exception Flow	<p>E1: Garage owner cancels logout</p> <ul style="list-style-type: none"> • The system returns to the previous screen.

GA-UC-04 - View Garage Profile

Use Case ID	GA-UC-04
Use Case Name	View Garage Profile
Primary Actor	Garage Owner
Description	Allows garage owners to view their profile details including location, service offerings, working hours, and contact information.
Trigger	The garage owner selects the “View Profile” option.
Preconditions	<ul style="list-style-type: none">• The garage owner is logged in.• The garage profile is set up.
Postconditions	The profile information is displayed on screen.
Main Flow	<ol style="list-style-type: none">1. The garage owner selects “View Profile” from the menu.2. The system retrieves the garage's saved profile data.3. The system displays the garage information in a readable format.
Alternate / Exception Flow	E1: Profile Not Found <ul style="list-style-type: none">• If the garage profile is incomplete or missing, the system displays a message and prompts for profile setup.

GA-UC-05 - Update Garage Profile

Use Case ID	GA-UC-05
Use Case Name	Update Garage Profile
Primary Actor	Garage Owner
Description	Allows garage owners to update their profile information.
Trigger	The garage owner selects the “Edit Profile” option.
Preconditions	The garage owner is logged in.
Postconditions	Updated garage information is saved.
Main Flow	<ol style="list-style-type: none">1. The garage owner opens the profile page.2. The garage owner updates services, hours, availability, location, or contact info.3. The system validates the changes.4. The system saves the updated profile.
Alternate / Exception Flow	E1: Invalid Input <ul style="list-style-type: none">• The system prompts the owner to correct errors.

GA-UC-06 - Approve Appointment

Use Case ID	GA-UC-06
Use Case Name	Approve Appointment
Primary Actor	Garage Owner
Description	Allows the garage owner to approve an incoming appointment request from a driver.
Trigger	A new appointment request is received.
Preconditions	<ul style="list-style-type: none"> The garage owner logged in. A pending appointment request exists.
Postconditions	<ul style="list-style-type: none"> The appointment status is updated to Approved. The driver is notified of the approval.
Main Flow	<ol style="list-style-type: none"> The system displays a list of pending appointment requests. The garage owner selects an appointment request. The garage owner reviews the appointment details. The garage owner selects the Approve option. The system updates the appointment status to Approved. The system notifies the driver of the approval.
Alternate / Exception Flow	<p>E1: Appointment No Longer Available</p> <ul style="list-style-type: none"> If the appointment slot is no longer available, the system displays an informational message and does not update the status.

GA-UC-07 - Reject Appointment

Use Case ID	GA-UC-07
Use Case Name	Reject Appointment
Primary Actor	Garage Owner
Description	Allows the garage owner to reject an incoming appointment request from a driver.
Trigger	A new appointment request is received.
Preconditions	<ul style="list-style-type: none"> The garage owner logged in. A pending appointment request exists.
Postconditions	<ul style="list-style-type: none"> The appointment status is updated to Rejected. The driver is notified of the rejection.

Main Flow	<ol style="list-style-type: none"> 1. The system displays a list of pending appointment requests. 2. The garage owner selects an appointment request. 3. The garage owner reviews the appointment details. 4. The garage owner selects the Reject option. 5. The system updates the appointment status to Rejected. 6. The system notifies the driver of the rejection.
Alternate / Exception Flow	<p>E1: Appointment No Longer Available</p> <ul style="list-style-type: none"> • If the appointment has already been approved or rejected, the system displays an informational message.

GA-UC-08 - Update Service Status

Use Case ID	GA-UC-08
Use Case Name	Update Service Status
Primary Actor	Garage Owner
Description	Allows the garage to update service progress.
Trigger	The service status changes.
Preconditions	An appointment exists.
Postconditions	The updated service status is visible to the driver.
Main Flow	<ol style="list-style-type: none"> 1. The garage owner selects an active appointment. 2. The garage owner updates the service status. 3. The system saves and displays the new status.
Alternate / Exception Flow	None

GA-UC-09 - View Service History

Use Case ID	GA-UC-09
Use Case Name	View Service History
Primary Actor	Garage Owner
Description	Allows garage owners to view previous service and appointment records.
Trigger	The garage owner opens history.
Preconditions	Service history exists.
Postconditions	Past services and appointments are displayed.

Main Flow	<ol style="list-style-type: none"> 1. The system retrieves historical records. 2. The system displays the records in a list.
Alternate / Exception Flow	E1: No History Available <ul style="list-style-type: none"> • The system displays an empty state message.

GA-UC-10 - View Garage Notifications

Use Case ID	GA-UC-10
Use Case Name	View Garage Notifications
Primary Actor	Garage Owner
Description	Allows the garage owners to view system notifications.
Trigger	A notification is received, or the notification page is opened.
Preconditions	The garage owner logged in.
Postconditions	Notifications are displayed by time period.
Main Flow	<ol style="list-style-type: none"> 1. The garage owner opens notifications. 2. The system groups notifications by day, week, or month. 3. Notifications are displayed.
Alternate / Exception Flow	E1: No Notifications Available <ul style="list-style-type: none"> • The system displays an informational message.

GA-UC-11 - Update Garage Settings

Use Case ID	GA-UC-11
Use Case Name	Update Garage Settings
Primary Actor	Garage Owner
Description	Allows garage owners to customize application settings.
Trigger	The garage owner opens settings.
Preconditions	The garage owner is logged in.
Postconditions	Settings are saved successfully.
Main Flow	<ol style="list-style-type: none"> 1. The garage owner modifies theme, language, or notification settings. 2. The system saves the preferences.
Alternate / Exception Flow	None

GA-UC-12 - View Garage Reviews & Ratings

Use Case ID	GA-UC-12
Use Case Name	View Garage Reviews and Ratings
Primary Actor	Garage Owner
Description	Allows garage owners to view ratings and reviews submitted by drivers for completed services.
Trigger	The garage owner opens the Reviews section.
Preconditions	<ul style="list-style-type: none">• The garage owner is logged in.• At least one service has been rated by a driver.
Postconditions	Garage reviews and ratings are displayed.
Main Flow	<ol style="list-style-type: none">1. The garage owner navigates to the reviews and ratings section.2. The system retrieves ratings and written reviews submitted by drivers.3. The system displays the average rating and individual reviews.
Alternate / Exception Flow	E1: No Reviews Available <ul style="list-style-type: none">• The system displays a “No reviews available” message.

3.4 Non-Functional Requirements

Non-functional requirements define the system-wide attributes that impact the usability, performance, security, and reliability of the Driver assistance and vehicle management system. These requirements apply to the overall system rather than individual components and are described in measurable terms to guide development and evaluation.

3.4.1 Performance

The Driver assistance and vehicle management system must provide responsive performance across the Driver App, Garage App, and Admin Dashboard. At least 95% of user transactions, including appointment

management, service updates, notifications, and administrative actions, shall be processed within two to five seconds under normal operating conditions.

User interface operations such as loading dashboards, viewing notifications, searching data, and updating settings shall complete within three seconds for at least 94% of requests. Time-critical operations, including onsite assistance requests and appointment status updates, shall provide feedback within five seconds for at least 90% of requests. The system shall support a minimum of 80 concurrent users without noticeable performance degradation.

3.4.2 Reliability

The Driver assistance and vehicle management system shall reliably support driver, garage, and administrative operations. At least 95% of system transactions related to appointments, service updates, notifications, and settings shall be completed without failure during normal operation.

The system shall ensure data integrity by completing or safely rolling back interrupted transactions. It shall achieve a Mean Time Between Failures (MTBF) of at least 30 days and automatically recover from minor failures within 5 minutes.

3.4.3 Availability

The Driver Assistance and Vehicle Management System shall maintain an availability of at least 98% per month. System downtime shall not exceed 15 minutes per day, excluding scheduled maintenance. At least 95% of user requests, including appointment management, notifications, and service updates, shall be accessible at any given time. In the event of an unexpected system failure, core services shall be restored within 20 minutes for at least 90% of outage incidents.

3.4.4 Security

The Driver Assistance and Vehicle Management System shall ensure the confidentiality, integrity, and protection of user and system data. 100% of user accounts (drivers, garages, and administrators) shall require authentication before accessing system features. User sessions shall automatically expire after 15 minutes of inactivity. At least 95% of detected unauthorized access attempts shall be blocked and logged for

administrative review. Sensitive user data, including login credentials and personal information, shall not be accessible without proper authorization. The system shall record 100% of security-related events, such as failed login attempts and access violations, for monitoring and auditing purposes.

3.4.5 Maintainability

The Driver Assistance and Vehicle Management System shall be designed to allow efficient maintenance, updates, and issue resolution. At least 90% of identified software defects shall be resolved within 72 hours of detection. Routine system updates and enhancements shall require no more than 30 minutes of service interruption per update. The system shall allow 100% of configuration changes, such as notification settings and system parameters, to be applied without requiring major code modifications. Documentation shall be maintained to support at least 95% of system components, enabling developers to understand, modify, and extend the system with minimal effort.

3.4.6 Portability

The Driver Assistance and Vehicle Management System shall be portable across multiple platforms and environments. At least 95% of system features shall function consistently across supported mobile and web platforms without modification. The system shall support installation and execution on different operating systems with no more than 5% platform-specific configuration changes. Migration of the system to a new environment shall be completed within one working day without data loss for 100% of user records. User interfaces shall adapt to different screen sizes while maintaining at least 90% layout consistency.

3.5 Inverse Requirements

The application will **not**:

- Provide direct financial transactions or payment processing between drivers and garages.
- Offer full real-time vehicle diagnostics via hardware sensors (e.g., OBD-II integration).
- Replace professional mechanical expertise; AI chatbot guidance is limited to general advice.
- Guarantee service quality beyond community ratings and admin verification.
- Operate offline; internet connectivity is required for maps, cloud syncing, and updates.
- Handle insurance claims, legal disputes, or government licensing processes.

3.6 Design Constraints

The system must adhere to organizational coding standards and frameworks to ensure consistency, maintainability, and scalability. It will be developed using specified programming languages, including TypeScript, Python, and Dart, ensuring compatibility across different system components such as the mobile application, backend services, and web interface.

Furthermore, the architecture should be designed with scalability in mind, allowing the platform to accommodate future growth in users, and system capabilities without requiring significant rework. The use of containerized deployment (Docker) and cloud-based infrastructure ensures portability and consistent environments across development, testing, and production.

Additional constraints include:

- **Database:** PostgreSQL must be used to guarantee relational consistency and structured data storage.
- **Mapping Services:** Google Maps API is required for GPS accuracy and routing.
- **Authentication:** JWT must be implemented for secure, token-based authentication.
- **UI Frameworks:** Flutter for cross-platform mobile development and React for the admin dashboard.
- **Hardware Limitations:** The system must remain performant on mid-range mobile devices, considering GPS and background services.

3.7 Logical Database Requirements

The system will use a PostgreSQL relational database to securely store all user-related information, ensuring confidentiality and data protection. The database must support strong data integrity and redundancy measures to prevent data loss and maintain consistency across all operations. Efficient querying and indexing mechanisms should be implemented to optimize performance, enabling fast data retrieval and seamless system operations even under high user loads.

3.8 Other Requirements

To facilitate usability, administrators may require a short onboarding session to familiarize themselves with dashboard features such as garage approval, content management, and user moderation. Training

requirements are minimal for drivers and garages as the mobile applications are designed to be intuitive and user-friendly. To support users, the system will include a help section or FAQ for quick guidance.

Packaging requirements specify that the mobile applications will be delivered as installable APKs, while the admin dashboard will be deployed as a browser-accessible web application. The source code will be organized in a structured folder hierarchy, accompanied by a README file that explains setup, dependencies, and environment configuration. Docker configuration files will be included to simplify deployment and ensure consistency across environments.

The system must comply with copyright laws and respect license agreements for third-party components, ensuring proper usage and distribution of external software dependencies. Additionally, user data must be handled in accordance with data protection principles, ensuring confidentiality, secure storage, and user-generated content within the community section must adhere to platform guidelines, avoiding harmful, misleading, or illegal material.

4. Change Management Process

Any modifications to the Software Requirements Specification (SRS) will follow a structured change management process to ensure proper evaluation, documentation, and communication of changes.

The following stakeholders are authorized to initiate change requests:

- Advisors – Provide strategic guidance on necessary modifications.
- Project Team Members – Developers, designers, and analysts who identify needed adjustments.
- Examiners – Review system functionality and suggest improvements.
- End Users – Provide feedback that may lead to system improvements.

The change management process follows these steps:

1. Submission: Stakeholders submit a change request through the designated platform, providing details on the proposed modification and its justification.

2. Review & Impact Analysis: A review board evaluates the feasibility, impact, and priority of the requested change, considering technical, operational, and business implications.
3. Approval or Rejection: If the change is deemed necessary and feasible, it is approved. Otherwise, it is rejected with documented reasons.
4. Implementation & Version Control: Approved changes are incorporated into the SRS, with version control mechanisms ensuring proper tracking of modifications.
5. Stakeholder Notification: All relevant stakeholders are informed of the approved changes and their implications, ensuring transparency and alignment with project objectives.

This structured process ensures that all changes are carefully evaluated and integrated without disrupting system stability or project goals

References

Bibliography:

Wiegers, K., & Beatty, J. (2013). *Software Requirements* (3rd ed.). Microsoft Press.
A detailed practical guide to capturing, writing, and validating software requirements, widely used by practitioners and students.

Web resource:

Software Requirement Specification (SRS) Format. GeeksforGeeks.

<https://www.geeksforgeeks.org/software-requirement-specification-srs-format/> (Accessed: Dec 25, 2026)

Best Guide on Software Requirements Specification 2024. Hapy.co.

<https://hapy.co/journal/software-requirements-specification/> (Accessed: Jan15, 2026)